

Industrial Standardization

and Commercial Standards Monthly



January

Two New Standards in Wire
and Cable Series — Page 16

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1940

“Ixion Breakfasted with the Gods —”

IXION breakfasted with the gods, but remembered only the pattern of their tablecloth.”

Howard Coonley of the National Association of Manufacturers quoted this proverb at the ASA annual meeting when asked to comment upon the challenge of standardization today to industrial management.

“I puzzled over the meaning for a long time,” Mr. Coonley said, “but now I have found that ‘the gods’ are the men who promote and understand standardization.

“‘Ixion’ is that group of high management in industry and commerce which cannot see the advantages of standardization to their companies, their industries, or to the country as a whole.”

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Edmund A. Prentis
President



R. E. Zimmerman
Vice-President

ASA Officers Re-elected

ASA Annual Meeting Hears Lansburgh; Election of Officers Announced

MORE than 250 executives, engineers, and representatives of Member-Bodies, Associate Members, and Company Members of the American Standards Association met at the Association's Annual Meeting December 13 to hear Richard H. Lansburgh, Director of the Pennsylvania Economy League, speak on "Standards as an Integrating Community Force." Mr. Lansburgh, who has had close contact with the work of the American Standards Association through his experience as Secretary of the Pennsylvania Department of Labor and Industry, urged that co-operative methods such as those made effective by the American Standards Association be used to help solve community problems. His address is published on page 9.

Election of officers for the year 1940 was announced at the meeting. E. A. Prentis, secretary and chief engineer of the engineering and contracting firm of Spencer, White, and Prentis, was

re-elected president of the Association, and R. E. Zimmerman, vice-president of the United States Steel Corporation, was re-elected ASA vice-president. Mr. Prentis has been a member of the Board of Directors, nominated by the American Society of Civil Engineers since 1935, and as president of the ASA for the past year. He served as vice-president for two years, 1936 and 1937, until his election as president in 1938. Mr. Zimmerman has been a member of the Board of Directors since 1937, nominated by the American Iron and Steel Institute, and was elected as vice-president for the year 1938.

R. P. Anderson, American Petroleum Institute, is the new chairman of the Standards Council, succeeding F. M. Farmer, vice-president of the Electrical Testing Laboratories and president of the American Institute of Electrical Engineers. Mr. Farmer had served as chairman of the Standards Council since 1937, and Dr. Anderson as

vice-chairman during 1938 and 1939. Dr. Anderson has been a member of the Standards Council, representing the American Petroleum Institute, since 1934, and is secretary of the international standardization committee on petroleum.

H. S. Osborne, engineer in charge of operating results of the American Telephone and Telegraph Company, elected vice-chairman of the Standards Council, is the one new officer of the ASA for the coming year. Dr. Osborne is not new to ASA work, however. He has been a member of the Standards Council, representing the American Institute of Electrical Engineers, since 1923, almost from the time the Main Committee (now the Standards Council) was organized. He is also a member of the Electrical Standards Committee, and vice-president and treasurer of the United States National Committee of the International Electrotechnical Commission. Dr. Osborne has been with the American Telephone and Telegraph Company since 1910, and is author of many papers on engineering phases of telephone work. He is active in the work of the American Institute of Electrical Engineers, serving on several AIEE committees, as chairman of the AIEE Finance Committee, and past-chairman of its Technical Program Committee. He is also a member of the Institute of Radio Engineers.

Following the introduction of the new officers,

the president's report was read by Mr. Prentis, and the report of the chairman of the Standards Council by Mr. Farmer. Both reports are published in this issue (pages 3 and 5).

Howard Coonley, chairman of the ASA Advisory Committee, was asked to comment on Mr. Lansburgh's address and particularly on the challenge of standardization to the executive. Mr. Coonley spoke briefly of the short-sighted policy of those executives who are unable to see the importance of standardization in their work, and called attention to the need for a larger budget to enable the ASA to carry on the work it is expected to do. He concluded by calling attention to the fact that P. G. Agnew, secretary of the Association, has just completed his twentieth year with the ASA. He said:

"On the fifteenth of December, our secretary, Dr. P. G. Agnew, will have completed his twentieth year as secretary of this Association. The character of the man and of his work honors his association with this movement. I know that you will join with me in congratulating Dr. Agnew on his outstanding performance and in recognizing the honorable work he has done for us in those 20 years."

A more complete report of Mr. Coonley's remarks will be found on the inside front cover and on page 11.

New Standards Council Officers

R. P. Anderson
Chairman



H. S. Osborne
Vice-Chairman



Democratic Methods Widen ASA Influence, Bring Agreement Between Diverse Groups

SINCE we met last year, another great and fearful war has broken out in Europe. In these days of bombs and dictators, of the destruction of the weak by the strong, to many—certainly to me—the word “republic” assumes again a very real meaning; it means the American way of life.

What is this American way of life? In essence, it is that democratic process wherein our own representatives gather together in an atmosphere of liberty, and by agreement formulate rules for our own governance.

This is precisely what the ASA does in the field of Standardization. It thus stands out as one of the important but not too well known beacons which indicate that private enterprise and free discussion still flourish in this land. For this reason, as well as for the usefulness of its work, it deserves the full support of that American industry it has served so well for 21 years.

Our Association is a federation of many diverse economic groups. The one tie binding them all together is the need of a national clearing-house for standards in which all who properly wish to, have a voice.

The idea behind this organization is sound. It was born out of the needs of the great war in 1918 and every industrial country has found it necessary to set up something similar. It has gone through the greatest depression known to history with a constantly widening sphere of influence and steadily increasing financial support. One trouble, however, is that the support has not increased as fast as the work, and for the past three years the American Standards Association has been struggling to do a two-hundred-thousand dollar job on a budget of one hundred thousand dollars. The work has consequently suffered—suffered in very many ways. If industry wants this job done, it must pay for it.

I have no illusions as to what will happen if we do not do the job ourselves. It will be done by someone else, and that someone else will be the government. And again industry will have failed to exercise that private initiative about which we hear so much.

Association's expanding scope of work needs increased financial support from industry to carry forward successful program

by

E. A. Prentis¹

President, American Standards Association

While disappointed, I am not dismayed as to our finances. Our bills are paid, and we have a little money in the bank. Moreover, the very real hope flourishes that, with the aid of our Directors, our Advisory Committee, and of our fine staff, industry will rise to its opportunity and give that financial support in the near future which is so necessary to the successful conduct of our work.

Now I am going to turn to another side of the picture—the work itself. I said that the sphere of ASA influence had been constantly increasing. Last June our Advisory Committee was reorganized to include some leaders from industries not previously represented. The present committee consists of Howard Coonley, chairman; Ralph Budd; Floyd Carlisle; Karl Compton; Lamont duPont; Lincoln Filene; Walter Gifford; Leroy Lincoln; J. H. McGraw, Jr.; A. W. Robertson; Alfred Sloan; E. R. Stettinius; and Walter Teagle. It is obvious that these gentlemen serve because of the actual and potential value of the service rendered by the American Standards Association, and we greatly value their interest, advice, and help.

I said that the American Standards Association

¹Member of firm, Spencer, White and Prentis, New York.

was born out of the production problems of the World War. Now again it is certain that standards are bound to play an important part in our American preparedness program. The ASA is in an ideal position to help. Last month we offered our services to the government through the War Resources Board, and the Standards Council has arranged that standardization committees will cut through their normal routine and speed up their work, particularly where it involves standards of importance to the services. Smoothing the way for this closer cooperation in national preparedness, the American Standards Association has named four liaison representatives on the new government Screw Thread Committee.

Government, ASA Have Close Ties

There is a very close and intimate tie-up between the work of many government departments and the development of industrial standards through the American Standards Association. We published in the November issue of *INDUSTRIAL STANDARDIZATION* a chart showing the government groups that issue specifications for government purchases, which yearly run into hundreds of millions of dollars—and that issue standards for the use and the protection of the public and for industry. Just to give you an idea of the close government tie-up, seven government departments and two independent establishments are members of our Association, 47 establishments are taking part in the work of ASA technical committees, and 81 are issuing standards of their own.

During the year the Association has been able to take measures for the legal protection of its name and symbol. The first steps have been completed toward surrounding the term "American Standard" with safeguards to prevent its use by others in such a manner as to suggest that an article or device has been approved by the ASA as an American Standard. The name of the Association has been recorded with the U. S. Patent Office. The symbol has been filed as evidence of prior use; and further has been registered as a collective trade-mark which establishes the right of the ASA to its exclusive use on publications relating to standards.

Work is carried on in many fields, one of the most important of which is highway traffic standardization. Here there is a large number of national agencies working independently on a single national problem, and the effectiveness of their work is naturally enhanced by the clearing-house function which we are set up to provide. Today, through the Highway Traffic Standards Committee of the American Standards Association, representatives of all groups interested in motor,

highway, or traffic safety problems are working together to cut down the accident toll and to bring some order out of the chaos of varying highway, motor, and traffic requirements. With the approval last August of Standard Inspection Requirements for Motor Vehicles we reached a point in our traffic safety work where we can take a breath and consider new projects in the light of a well-rounded, coordinated traffic standards program rather than taking emergency action on each job as it comes to us.

You will probably remember that the Association has done some work in the photographic field. Recently it undertook a huge new job—a broad program of national and international standards for photographic equipment. The photography industry has reached a place where it wants to consolidate its gains as a basis for further research and invention. Without the services of some such organization as the American Standards Association this would be almost impossible. Here is a place where everyone in the industry knows that standards will be adopted which fairly represent a national consensus of opinion in which he will have a voice. The value of this service he can judge for himself.

The aeronautical work is also of wide interest, particularly in these times of national preparedness. For when production has to be stepped up, every engineer knows that interchangeability of parts takes on an increased importance. Last February, following an invitation from the International Standards Association, the principal aeronautical organizations in this country met under our auspices to plan for a national and an international program of standardization work. A small international conference on the subject was held in New York three months later but the war has hampered the international phases of both this and the photography work. It has by no means stopped them, however, and the American committees are carrying through the national part of the program.

Another important project is the program of standards for the prevention of occupational diseases which involves the life and health of many thousands of workmen. Within the year an important committee has been reorganized with new powers, and standards covering carbon monoxide and three other poisonous substances are fully drafted ready for final consideration.

New Work for Consumers

Probably all of you know that in the past few years the American Standards Association has undertaken a number of projects in the consumer field. The sum total of these is a program of

basic merchandising standards to increase the effectiveness of advertising and production and to satisfy some of the complaints of consumer organizations. This work involves many new problems, and the cooperation of groups that have for some time been at cross purposes. As you may guess, the work is moving rather slowly, but I believe that what has been done is providing a sound basis for greater progress later on. In a recent public opinion survey carried out for the advertising industry more than half of those questioned expressed an interest in the standardization of products.

I have touched on only a few of the high spots

of our activities. In conclusion I want to say a word of thanks to the 3,000 men who are serving on ASA committees. To the staff I extend my congratulations and appreciation for their devotion to the work. To the officers and to the gentlemen who have served with me on the Board of Directors I want to say that we have a right to be proud of the fine clearing-house job that the ASA is doing for industry and government. I am sorry that I cannot say as much for our finances. This is our responsibility, too, and yet we let the organization limp along on a budget of about half what it should be. If the job is worth doing at all, it is worth doing better than that.

ASA Committees Show Activity In 1939 Report of Progress

by

F. M. Farmer¹

*Retiring Chairman,
ASA Standards Council*

THE Standards Council is the body in charge of and responsible for all of the technical work of the American Standards Association. There are 137 projects actively in hand at the present time involving the voluntary services of nearly 3,000 men serving on the various committees that carry on the work. It is of course not practicable to review in this Annual Report all of these activities, nor would such a detailed report serve any particularly useful purpose since all vital steps in connection with every project are reported to the members of the Council in the well known "MC's" and often also in INDUSTRIAL STANDARDIZATION. Therefore, only brief comments on the more important phases of the year's activities will be attempted.

Since the last Annual Meeting, the Standards Council has approved 64 standards, of which 45 are revisions and 19 are new. These bring

the total number of American Standards to 405. The Council has also investigated and recommended withdrawal of nine American Standards that had either been superseded by other standards or were out of date.

During the year six new standardization projects were authorized by the Council. Two are in the safety field—a project for Household Ladders, and one for Industrial Stairs. The work on household ladders will be an enlargement of the present work on the construction, care, and use of ladders. The industrial stair project has grown out of numerous requests to the ASA office for information concerning general industrial stair construction and design.

Another of the new projects is standardization in the field of library work and documentation, a task that will be a lengthy one. The American Library Association, the Special Libraries Association, the Medical and the Law Libraries associations, joined together in requesting the ASA to undertake this work, which will include developing uniform methods of listing catalog material and of compiling reference data. It will also include uniform sizes and styles of library equipment, and standard styles for library records and publications. Such standards will, of course, greatly simplify the work of librarians, and make the information in libraries more readily available to readers and research workers. The committee now being organized for this project will also

¹Vice-president, Electrical Testing Laboratories; president, American Institute of Electrical Engineers.

represent American interests in the work on Documentation which was started a few years ago under the International Standards Association.

Another new project of importance internationally as well as nationally is Standardization in the Field of Aeronautics. Last February representatives of the principal aeronautical organizations in this country met at the ASA headquarters to discuss the possibilities of national and international standardization of aircraft engines, aircraft, and aviation fuels. In May, informal international conferences on these subjects were held in New York, on the occasion of the World Automotive Engineering Congress of the SAE. But the war situation in Europe has brought international work practically to a standstill. On the other hand the national part of the program is being pushed as rapidly as possible, national preparedness having increased the need for American Standards that will aid production and make replacements easier.

The 64 standards approved this year cover a wide range of subjects. They include safety codes, specifications for steels for particular purposes, methods of test for petroleum products,

standards for machine tools, for pipe flanges and fittings, for electrical equipment, for paint specifications, and for gypsum plasters.

Possibly the most important task completed this year is the Standard Inspection Requirements for Motor Vehicles developed under the supervision of the National Conservation Bureau and the American Association of Motor Vehicle Administrators. This consists of practical recommendations for the upkeep of headlights, tires, wheels and wheel alignment, steering apparatus, etc., which make for economy and safety in the operation of motor vehicles. Thirty national organizations in the automotive and safety fields took part in the work which it is believed will materially raise the average level of condition of cars operating on our highways. It should also educate the public on the importance of maintenance as well as raising the level of maintenance work done by garages. The standard has been officially endorsed by the American Association of Motor Vehicle Administrators, and it received considerable attention at the National Automobile Show held in New York City. With the approval of this standard, we have reached a point in our

Nineteen New Standards, 27 Revisions, Approved by ASA During Year

Nineteen new standards were approved by the American Standards Association from the time of the annual meeting in 1938 to December 13, the date of the 1939 annual meeting, Mr. Farmer reported. These 19 new standards cover a wide field of standardization activity:

Computation of Strength and Thickness of Cast-Iron Pipe, American Recommended Practice A21.1-1939
Specifications for Cast-Iron Pit Cast Pipe for Water or Other Liquids, American Standard A21.2-1939
Specifications for Cement Mortar Lining for Cast-Iron Pipe and Fittings, American Standard A21.4-1939
Terminology and Definitions for Single-Point Cutting Tools, American Standard B5.13-1939
Involute Splines, Side Bearing, American Standard B5.15-1939
Face-to-face Dimensions of Ferrous Flanged and Welding End Valves, American Standard B16.10-1939
Safety Code for Compressed Air Machinery and Equipment, American Standard B19-1938
Specifications for Electric Fusion-Welded Steel Pipe for High-Temperature and High-Pressure Service, American Standard B36.11-1939
Indicating Pressure and Vacuum Gages, American Standard B40.1-1939

Specifications for Weather-Resistant Saturants and Finishes for Aerial Rubber-Insulated Wire and Cable, American Standard C8.19-1939
Specifications for Heavy-Walled Enameled Round Copper Magnet Wire, American Standard C8.20-1939
Inspection Requirements for Motor Vehicles, American Standard D7-1939
Specifications for Steel for Bridges and Buildings, American Standard G24-1939
Specifications for Titanium Dioxide Pigments, American Standard K45-1939
Definitions for Varieties of Bituminous and Sub-bituminous Coals, American Standard M20.4-1939
Specifications for Round Timber Piles, American Standard O6-1939
Specifications for Structural Wood Joist and Plank, Beams and Stringers, and Posts and Timbers, American Standard O7-1939
Specifications for Sieves for Testing Purposes, American Standard Z23.1-1939
Marking Articles Made of Karat Gold, American Standard CS67-38

Revisions to bring 27 other standards up-to-date or to recognize their general acceptance by advancing them from tentative to American Standard were approved during the year.

traffic safety work where we should begin to see ahead a little, and take stock of the movement as a whole.

The American Standard Definitions for Varieties of Bituminous and Sub-bituminous Coals approved this year rounds out the American Standard classification of coals by rank, by grade, by size, and by variety. This job, carried out under the technical leadership of the American Society for Testing Materials has involved the work of some of the leading geologists, chemists, and fuel engineers of the United States and Canada. Four American Standards in this field now provide a complete classification of American coals from anthracite to lignite. The value of this work to producers and users of coal can hardly be measured.

In the safety field, a revision of the Manual of Accident Prevention in Construction, developed by the Associated General Contractors of America has been approved as an American Recommended Practice. This approval, bringing with it as it does the endorsement of a widely representative group of national organizations who are now active in ASA work, should do much to broaden the acceptance of the Manual and to increase its effectiveness in cutting the \$194,000,000 accident bill that is yearly attributed to the construction industries.

Another important revision approved within the year is the National Fire Protection Association's regulations for ventilating systems. This is a very important job. The standard includes regulations for the installation of air conditioning, air heating, air cooling, and ventilating systems for both residential and public buildings. ASA approval, by enlisting the support of new groups, should materially increase the usefulness of an excellent piece of work carried on by the NFPA.

Photography. Probably one of our most interesting projects from the layman's point of view is the development of standards for photographic apparatus, supplies, and equipment. This is being done on both a national and an international scale, for the United States was last year given the secretariat for ISA work in this field. Plans so far provide for inclusion in the project of every phase of photography except moving pictures, and range from physical characteristics and dimensions of exposing equipment, sensitive materials, and holders, to methods of determining and indicating speed of sensitive materials, focal length of lenses and lens openings. One of the most difficult problems, but one on which good progress has already been reported, has to do with measuring photographic speed of negative materials and sensitivity to light. In fact a standard covering this particular phase of the work is already in draft form.

ASA Committees Will Work On Six New Projects

Six new projects have been authorized by the American Standards Association during the past year, covering:

- Standardization in the Field of Aeronautics
- Specifications for Water-Cooling Towers
- Standardization in the Field of Library Work and Documentation
- Preferred Voltages—100 Volts and Under
- Household Ladders
- Industrial Stairs

Committees organized under the procedure of the American Standards Association will give all organizations concerned an opportunity to take part in the development of these standards.

Correlating Committees

Building.—As you know we have fourteen committees working on standards for a model building code under the supervision of the Building Code Correlating Committee. All of these committees report progress, and a number hope to complete their assignments in the next few months. Standards on: administrative requirements, light and ventilation, reinforced gypsum concrete, and excavations and foundations are already in draft form; and the preparation of drafts is under way on fire protection and fire resistance, signs and outdoor display structures, chimneys and heating appliances, and minimum design loads in buildings.

Another important project in the building field has to do with coordination of dimensions of building materials and equipment. This project was authorized at the meeting of the Standards Council a year ago. Since that time a committee has been formed, subcommittees and special research groups set up, and the work is well under way.

Safety.—Our Safety Code Correlating Committee has under its supervision at least 50 projects. It has reviewed the status of all of them during the year. Some that have been on the books for a number of years are being referred back to the sponsors for revision; and in a few cases of uncompleted projects, where the industries involved appear to have lost interest, it is being proposed that these be abandoned.

This review has brought out the desirability of initiating certain new projects, two of which, those for Household Ladders and for General Industrial Stairs, have already been mentioned, as has also the approval of inspection requirements for automobiles and of the fire protection standard for ventilating systems.

Among other jobs in the safety field completed this year are a revision of the Code for the Protection of Heads, Eyes, and Respiratory Organs of Industrial Workers, and a safety code for Compressed Air Machinery and Equipment.

It will be recalled that about a year ago an ASA Committee working on problems of occupational disease prevention, the Advisory Committee on Toxic Dusts and Gases, was reorganized as a regular ASA

project committee. Since that time it has produced four draft standards which are now being voted upon by the Standards Council. These drafts for the first time make available authoritative opinion on safety limits for four commonly used toxic substances:—carbon monoxide, benzene, hydrogen sulfide, and carbon disulfide. In addition to the engineering information usually given in American Standards, these four standards will include sections describing how the poisonous substance acts on human beings, how it is absorbed, and how poisoning therefrom can best be treated.

These standards when completed will be used by American Standards Association committees working on the design and operation of special exhaust systems.

Mining.—In the mining field, two committees are working on revisions of the standards covering Wire Rope for Mines, and Rock Dusting Coal Mines to Prevent Dust Explosions. The safety code for coal mine transportation and the code for fire-fighting equipment in metal mines are being studied with an eye toward revision. A proposed new standard on Recommended Practice for Explosives in Anthracite Mines is well on its way toward completion.

Mechanical.—The mechanical work of the Association has always been very important. American Standards in this field approved during the year include Involute Splines, Pressure and Vacuum Gages, Terminology and Definitions for Single-point Cutting Tools; a revision of Round Unslotted Head Bolts, and of Taps; and a number of important standards in the field of wrought-iron and wrought-steel pipe and tubing and pipe fittings.

New standards on which drafts are under way include such important subjects as Speeds of Machinery, Classification and Designation of Surface Qualities, Engineering and Scientific Graphs for Publications, Reamers, and Designations and Working Ranges of Surface Grinders. Draft revisions are nearing completion on Tool Holder Shanks and Tool Post Openings, Jig Bushings, and Circular and Dovetail Forming Tool Blanks. Sixteen technical committees are working on standards for machine tools and machine tool elements under the general committee sponsored by the American Society of Mechanical Engineers, the National Machine Tool Builders Association, and the Society of Automotive Engineers.

Several important research projects are under way. For example, research work on screw thread practice is expected to result in information that will make it possible to revise the 1935 standard on screw threads.

Electrical.—During the year the Electrical Standards Committee has recommended approval of seven standards all of which were subsequently approved by the Standards Council. (See report of the Electrical Standards Committee, page 21). Two of these are new specifications for insulated wires and cables making a total of 19 standards to date in that field. Work has also been done on the revision of three highly important codes: the National Electrical Code, the National Electrical Safety Code, and the Code for Electricity Meters. The work of the ASA committee on Transformers has reached a stage where trial by industry of the comprehensive set of standards which has been developed, is desired. These are to be printed soon and will be sent out for a period of trial use and criticism.

Consumer Goods.—Work is going forward steadily on a number of projects in the consumer field. While no standard has as yet been approved for children's clothing sizes, a change in emphasis toward marking children's clothes with size measurements rather than by age is shown in the fall and winter catalogs of retail

stores as well as in data provided by manufacturers on garment labels. This new trend can be directly traced to the work of the ASA committee on sizes of children's garments.

The Advisory Committee on Ultimate Consumer Goods has been enlarged recently to provide for the representation of three more national groups.

Company Member Forum

Some time ago an ASA Company Member Forum was organized at the suggestion of some of our members who felt that it would be advantageous to discuss together informally many of their standardization problems. The ASA Company Member Forum has held three highly successful meetings during the year. The topics discussed include preferred numbers, screw threads, the relationship of a standardization department to other departments of a company, methods of statistical analysis in company standardization work and standardization of office equipment.

International Work

Even though committees working on international standards for airplane parts and fuels, photography, and many other projects in the mechanical and electrical fields are seriously hampered by war conditions in Europe, these international activities are not at a complete standstill. Contact is still being maintained with all the countries and the work carried on as much as possible through the normal channels.

Procedure

A committee of the Standards Council, called the Committee on Procedure, is constantly reviewing our basic procedure, on the lookout for ways of improving it and of expediting the work. During the year plans have been worked out for closer cooperation between the correlating committees in charge of projects in the various industrial fields. Furthermore, uniform by-laws for all advisory and correlating committees are being set up.

Some time ago the term American Tentative Standard was dropped from our rules of Procedure. Provision has now been made that after the first of the year all remaining American Tentative Standards shall be reviewed by the ASA committee in charge and resubmitted to the ASA with or without revision as American Standards. Those not resubmitted will be dropped from the ASA's books. It is proposed that where there is a need for preliminary publication of a standard for information and criticism the pages of the

ASA monthly magazine be utilized more extensively than in the past, and that reprints of such proposed standards be made available for distribution. If this practice is followed the remaining criticism of the elimination of the Tentative American Standard form of approval should be removed.

Much has been said about the time required for a standards project to get through the Association "mill" and reach the status of American Standard. Doubtless there will always be more or less delay, because deliberation by representatives of all concerned is the essence of the ASA system, and deliberation is inherently time-consuming. However, much could be done to expedite the work if more staff engineers were available—not to do the work of the committees but to facilitate their work by carrying on for them the clerical work, questionnaires, and similar routine activities, and by following up the programs of the committees and subcommittees in order to keep the work moving as fast as practicable. If the maximum rate of progress in our various

standardization projects is to be attained under the present system of voluntary service by men who must give their principal attention to their own jobs, they must be relieved of that part of the work which can properly be taken care of by staff men.

Acknowledgment to Committee Members

It is particularly fitting that this report should be closed with a word of thanks on behalf of the Council to the nearly 3,000 ASA committee members who are contributing their services to this work. The money equivalent of the expert services so freely supplied would be a very large sum and it is very much to the credit of American industry that these services are made available to the Association. However, it is the enthusiastic, earnest interest of these men in their various assignments that makes for real accomplishment, and for that interest the Council expresses its grateful appreciation.

Standards as an Integrating Community Force

THE Pennsylvania Economy League operates in much the same way as does the American Standards Association. It works with public officials on the basis of mutual helpfulness, and carries on its program largely through the help of "loan personnel." As Mr. Farmer has indicated, the work of the ASA could not be done except by those men who voluntarily give their time to the technical committees of the ASA, who are "loaned" by their organizations for this work, and who know the daily problems of industry.

That is also true of the Pennsylvania Economy League. We operate with the public officials of the State of Pennsylvania mainly through the voluntary cooperation of those officials.

The single most important fact which points to the ASA as an integrating force in the community, is that it does operate cooperatively. The members of each of its committees sit around the table to discuss their mutual problems, and do not make decisions until everyone has had an opportunity to be heard. Because the ASA works in that way, I believe it has an opportunity in this difficult world of ours to grow into even more of an integrating community force than it has been to date.

Cooperative methods of the American Standards Association would offer communities a basis for mutual understanding of varied local interests and for solution of social problems

by

Richard H. Lansburgh

*Director, Pennsylvania
Economy League*

You may recall that not many generations have passed since Frederick Taylor and his immediate associates founded, in our City of Philadelphia, the beginnings of what we have come to know as modern industrial management.

Not so many years ago, prior to the birth of

the ASA, there were few standards of operation in the plant. Frequently there were not even drawings from which the product was made. When, for instance, an order was taken for a type of product which required castings, the patterns were evolved from the experience of the foreman of the pattern shop.

Standards Make Progress

From that early beginning, careful thinkers in the field of management evolved standards for plant operation. If it had not been for the work of the American Standards Association, and the groups allied with it, we probably would have had springing up all over the country plant standards so varied in their nature that it would have been difficult to carry on the industrial processes of today. These processes, as you know, depend on national standardization, involving as they do the assembly in a central plant of products which are made literally in hundreds of factories located from the Atlantic Ocean to the Pacific. From such widely separated manufacturing plants they are brought together, assembled, and then distributed.

Today we have a low price level, despite increased labor costs. When we think of standardization, and the importance of this Association in integrating the work of its various member-bodies, in terms of this price level compared to the price level of just a few years back, with labor costs then existing, we must come to the conclusion that the work of the ASA has a tremendous community value. This value is not always recognized even by those who have been active in the ASA's work.

Recently I was looking through one of the issues of *INDUSTRIAL STANDARDIZATION* and I saw in it a re-statement of the work of the ASA, headed "How It works." Let us examine it. "The Association undertakes work only upon the request of a responsible organization or group. It then provides the machinery with which this and other groups can *themselves* arrive at a decision." How important that statement is—can *themselves* arrive at a decision.

Are there ways in which we can apply that technique of skilled, qualified people, sitting around the table arriving at a decision, to the problems which confront us in this country today? I think there are. Consider the accumulated knowledge of the men and women who are represented on the committees referred to in Mr. Farmer's report. Consider the fact that they are scattered throughout the country; that they are in almost every industry. Why should there not be an opportunity of bringing accumulated think-

ing from all these different men and women together on some of our more important daily problems—problems we are too inclined to leave to the political battle-field?

Consider the personnel of the Mechanical Standards Committee of the ASA, representing as it does sixteen great trade and technical groups, the National Bureau of Standards, and two government departments. Think in terms of the social values to the community which arise from the deliberations of that group over a period of many years. Try to project your thinking over the possibility of using the deliberations of that group on matters which are of prime social significance to the country. You must agree with me that real possibilities exist in using the standardization technique to bring together people of divergent views, to discuss, to analyze, to coordinate their thinking, and as a result of their deliberation to bring out the beginning of a solution to some of our major problems.

I happen, personally, to be familiar with the work of the Safety Code Correlating Committee. Before this committee was started, safety standards that existed in one state of the Union were entirely different from safety standards in other states. New concepts of working conditions were brought into industry through the development of safety standards by people interested in safety rather than through enforcement of safety regulations on people who had no particular interest in them.

Standards Save Injury

There is no factory inspection bureau in the United States today whose work has not been affected profoundly by the high-grade technical detail worked out by the committees of this Association. The return from this work cannot be expressed in mere dollars and cents of saving in production cost. They have changed the factories of the United States from dangerous places in which to work into the safest places that you can find—far safer in terms of number of accidents per hour of habitation than most homes; certainly far safer than the streets. But for the many standard safety codes, serious injury or death would have long since broken many happy family groups.

It is most significant that during the past year the ASA has brought out a code on motor vehicle inspection. It means something to the people who are enforcing motor vehicle laws; it will ultimately mean something to all of us as citizens of the community.

We all know that the standards as applied to fire hose have done much to make effective the

work of fire departments. I know from experience that the people of a community benefit because somewhere, sometime, 10, 15 or almost 20 years ago, a group of technicians got together around a table and developed standards for fire-hose couplings. Purchasing agents of municipalities and of states cannot pick and choose the company from which they will buy a particular material. They are required by law to develop specifications, and if the low bidder meets those specifications, to buy from him. It would be tremendously helpful if the work of this Association could be expanded so that each time a purchasing agent of any municipality had a product to buy he could reach into his file, pick out an American Standard, and say "Here is our specification. Now bid on it."

You can imagine what the result would be in money saving to the taxpayer and in more effective operation.

Top management in many companies affiliated with the ASA has recognized for years that standards represent an aid in the solution of its problems. Today, with the governmental relations and competitive conditions which exist in industry, top management must be freed from detail. And management that has within its own organization well-developed standards work that co-ordinates with the ASA finds itself relieved of many of these details. Consider the problems that would face management in the railroad industry today if many years ago someone had not developed a standard railroad gauge of 4 ft 8½ in. If passengers had to change trains every time they reached the end of a particular railroad line, and if freight had to be trans-shipped because of differences of track gauge, operating problems would be infinitely more difficult and more detailed than they are today. Because of the adoption of that one standard many otherwise difficult operating decisions are made simple and easy.

Today we take many basic standards for granted. Wherever they exist in an industry, or a manufacturing plant, top management has an opportunity to give its thoughts to management problems, to relationships between that industry and other industries, and of course today to relationships between that industry and Government.

Management Needs Standards

Because of the technical ability which is necessary to develop most standards, top management of many businesses has been inclined to look upon standardization as a task to be relegated to the technician.

Top management under the pressure of important new community, governmental and competitive developments may even fail to realize that



Howard Coonley

Chairman, ASA Advisory Committee; chairman of Board, Walworth Company; past-president, National Association of Manufacturers

Mr. Coonley Says:

"The work we do can be merchandised. If you do not believe it, look over the list of our Advisory Committee. If any greater group of men (with the exception of myself as chairman) could be brought together, I am sure I do not know how to do it. And those men are acting on the Advisory Committee because they believe in standardization.

"When other chief executives recognize the advantages of our work to their companies, to their industries, and to the country, we will have \$500,000, not \$100,000, annually for the national standardization program."

many of its day-to-day problems would not exist if it carefully fostered throughout the organization the possibilities that exist through standardization development.

Your president has referred to the fact that there are many jobs still to be done. If these jobs are not done today by industry, very likely they will be done by Government. Any of us who have had some connection with governmental operation know that to be true. Most of us today know it, whether we have had that relationship or not. The difficulty of leaving things to be done by government is that government, when it tries to solve problems alone, has to solve them

in the way which will seem to insure votes. There is a difference between political thinking and industrial thinking. "Hunches" frequently form the answer of the governmental official to a problem, and some of these "hunches" have worked because of the action of the law of averages. We all know that even on the most unfair gambling device the player wins at times.

I am not speaking of the men in the government departments who are technical men working with the ASA in its projects, but I am speaking of the responsible governmental official who has the final decision to make. The whole difference between "hunch" and careful thinking based on a conference in which all interests consider the elements involved in a problem, makes the difference between the methods of an association such as this and the methods of a governmental official.

Communities Need ASA Methods

You are, perforce, getting out of the old field for which you were originally created. Your new committee on consumer goods is now at work. You are facing the question of whether or not the consumer should know what is in the package that he buys. How much better that such questions should be considered by your technical committees, by groups of representatives, as ASA groups are, of industry, labor, consumers, and governmental bodies. How much better that standards which impinge directly on the consumer's pocketbook should be evolved by such representative groups, rather than by groups with their own axes to grind to the exclusion of the other fellows in the community.

We all know and have an interest in low-cost housing projects which are being promoted throughout America today. Many of the attempts in this direction have failed and are failing because they have been founded on ideas that spring from the heart and not from the head. Congress passes housing legislation because there is a pressure group which asks for housing legislation of a particular kind. Such pressure groups are minority groups. They have particular ideas for doing things in their own special way.

The result of some of this housing legislation in the community of which I happen to be a part simply does not make sense. The slums are torn down, presumably to give the dwellers better housing. These dwellers, however, cannot afford to live in the new houses. The rules exclude them because the residents of the new housing project must have a certain minimum income. The project has to be operated on a formula for repayment. That formula in itself does not repay the government or the community in which the project

is erected. In the City of Philadelphia, for instance, hundreds of thousands of dollars of taxes per annum have been waived for a period of 60 years in order that certain housing projects may be put up. The people who live in those housing projects are not the bottom strata of the community, however, but are the people who have to pay in one way or another the taxes that are waived in order to give cheap rent.

That is one way of attacking this fundamental problem—housing. Another way would be to bring together somewhere, somehow, representatives of all of the people interested in the construction industries, all those interested in the materials that go into construction, the labor representatives who are interested in the construction industry, those people in the community who pose as housing experts and probably are, and those people who have the point of view represented by the group which get the projects started. Together they could sit down, and with the needs of the community in mind, analyze the problems that exist in one of the greatest industries in the country.

You have cut your eyeteeth in developing material standards, construction standards, and building code standards. If when you are through, however, you cannot add those standards together and get houses which the community is able to buy, then you have not fulfilled your deepest purpose. It seems logical and necessary that somewhere in this land of ours there must be an industrial group which will study the housing problem from the standpoint of the community, and will integrate into its studies the points of view of all of the other people in the community who know the problems which are to be met. Standards for low-cost housing thrashed out around the table in that manner would give us a far different answer to the housing problem than the answer which has been given us so far. The American Standards Association has learned the technique of compromising between different warring factions on technical detail, not as compromises are reached in the political field, but through compromise on details in order to reach a practicable ideal. The American Standard which results is a practicable ideal.

Would Be Integrating Force

It seems to me that the community would be well served if this same technique were applied in the solution of other social problems clamoring for attention today. Here is an opportunity for our communities to make more effective use of our technical ability through the methods developed by this Association. If this standardization technique should be applied, it could make

of this organization the integrating force in the community on many of our basic social problems.

The American Standards Association is the one impartial integrating force in the industrial community where, government, the consumer, and labor all being present, standards can be developed to make the community a better place in which to live.

New ASA Company Members

Five new Company Members have joined the American Standards Association in the past few weeks, their fields of work indicating the wide range of activity covered by the ASA program. The new members are:

Good Housekeeping Institute
Hospital Bureau of Standards and Supplies, Inc.
Libbey-Owens Ford Glass Company
Western Precipitation Corporation
Wright Aeronautical Corporation

Through membership in the American Standards Association these organizations have become more closely associated with the national standardization program and are given broader opportunities to use the facilities of the American Standards Association.

CESA Boiler Regulations Include Reference to ASME Boiler Code

The Canadian Engineering Standards Association announces that it has approved new Regulations for the Construction and Inspection of Boilers and Pressure Vessels. The regulations are recommended for use by Provincial departments, as well as for manufacture and installation of boilers and unfired pressure vessels.

The present regulations are an outgrowth of regulations prepared by the Engineering Institute of Canada in 1919, which were adopted by a majority of the provinces of Canada in 1921 and 1922. Modifications were introduced in several of the provinces, however, and the Interprovincial Boiler Code Committee, made up of representatives of provincial inspection authorities, manufacturers, insurance and other groups, was organized to develop new standard regulations acceptable to all. The Canadian Engineering Standards Association was asked to assume responsibility for the work in 1936, its facilities making it possible to develop broader representation than otherwise would have been possible.

In connection with the new Canadian regula-

tions, the CESA has approved the adoption for use in Canada of the following standards of the American Society of Mechanical Engineers:

Power Boilers—1937 edition with material specifications
Low-Pressure Heating Boilers—1937 edition
Miniature Boilers—1937 edition
Unfired Pressure Vessels—1937 edition

All amendments of these ASME standards are subject to the approval of the CESA before they are recommended for use in Canada.

Standard Statistics Proposed To Help Heating Contractors

A system of standard business statistics, developed under the auspices of the Heating, Piping, and Air Conditioning Contractors National Association, would be as useful to the association's members as are their engineering standards, says Herbert A. Snow in an article in the October issue of the Association's *Official Bulletin*.

Such statistics would help heating contractors to determine the fair and accurate cost of all material, labor, and direct expense, and to determine what will be added to this cost to make the bid price, according to Mr. Snow.

"Our national engineering standards are intended to produce for each given requirement a minimum sized system of heating which will prove successful in accomplishing the result for which it is designed and for which the owner is paying his money to secure," he said.

"I am suggesting that we might have standard business statistics, which would serve our members in a similar manner and which would help to assure accuracy in the preparation of cost estimates, as the engineering standards assure accuracy in the selection and design of heating equipment as applied to all kinds and descriptions of conditions under which the equipment must function."

B. Stuart McKenzie

B. Stuart McKenzie, secretary of the Canadian Engineering Standards Association from 1925 to 1937, died October 16. Since 1937, when ill health had forced Mr. McKenzie to give up most of his active work, he had acted as Consultant to the Association.

His duties as secretary of the CESA brought Mr. McKenzie into close contact with ASA work. Through attendance at ASA committee meetings he was known to many ASA men.

*G. J. Ray**Jerome Strauss*

Ray and Strauss Elected As New ASA Board Members

TWO new members have been elected and three members have been re-elected to the Board of Directors of the American Standards Association, to take office January 1, 1940.

G. J. Ray, vice-president of the Delaware, Lackawanna and Western Railroad, New York, was nominated by the Association of American Railroads for a term of three years. Mr. Ray has been associated with his company for more than 30 years. As chief engineer he had charge of the construction of the Hopatcong-Staleford cut-off, one of the heaviest pieces of construction work accomplished on any railroad. He also designed and built the Tunkhannock Viaduct at Nicholson, Pennsylvania, the largest concrete bridge ever built. He has also had experience in association work, and is a past-chairman of the Engineering Division, Association of American Railroads and past-president of the American Railway Engineering Association. He was engineering assistant to the Federal Director, Eastern Region, U. S. Railroad Administration during Federal control.

Jerome Strauss, vice-president of the Vanadium

Corporation of America, New York, was nominated by the American Society for Testing Materials to succeed Dr. G. W. Thompson, who resigned last year. He will act for the remainder of Dr. Thompson's term of office, ending December 31, 1940. Mr. Strauss has long been interested in various phases of the standardization movement. He is well acquainted with both the ferrous and non-ferrous metal fields, and has taken an active part in the standardization work of the ASTM.

He has had experience in the metallurgical department of the Illinois Steel Company; in the manufacture of automotive drop forgings; in the Ordnance Department of the U. S. Army inspecting metallurgical facilities and products; and as chief chemist and materials engineer of the U. S. Naval Gun Factory at Washington. He became vice-president in charge of Research and Development of the Vanadium Corporation in 1935, and now directs the research activities of his corporation.

The three members who have been re-elected

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to the Board of the American Standards Association are:

George S. Case, chairman of Board, Lamson and Sessions Company, Cleveland, Ohio (nominated by the American Society of Mechanical Engineers)

H. P. Charlesworth, assistant chief engineer, American Telephone and Telegraph Company, New York (nominated by the ASA Telephone Group)

J. Edgar Pew, vice-president, Sun Oil Company, Philadelphia (nominated by the American Petroleum Institute)

The associations which nominated these members, together with the National Machine Tool Builders Association, and the Association of American Railroads, were selected by the ASA Board of Directors at its September meeting to name the new Board members for a three-year term beginning January 1, 1940.

Mr. Case has been a member of the Board for the past year, when he was nominated by the ASME to complete the unexpired term of Philip E. Bliss. Mr. Case has been active in standardization work for 20 years as a member of the Society of Automotive Engineers and the American Society of Mechanical Engineers, and as chairman of the Standards Committee of the American Institute of Bolt, Nut & Rivet Manufacturers.

Mr. Charlesworth, who has been a member of the Board since 1936 as a nominee of the American Institute of Electrical Engineers, has now been nominated for another three-year term by the ASA Telephone Group. He has had close contact with ASA work for many years, having served as vice-chairman of the Electrical Standards Committee and as a member of the United States National Committee of the International Electro-technical Commission.

Mr. Pew was elected to membership on the Board in 1934 as a nominee of the American Pe-

New ASA Members

Changes in membership of the American Standards Association during the past year brought to the ASA four new Associate Members, and three new Member-Bodies:

Member-Bodies—

American Water Works Association (advanced from Associate Member to Member-Body)

Federal Works Agency

Photographic Manufacturers Group:—Agfa-Ansco Company; Eastman Kodak Corporation

Associate Members—

American Association of Textile Chemists and Colorists

American Institute of Architects

American Welding Society

Modular Service Association

There are now 38 Member-Bodies, comprising a total of 42 organizations; and 31 Associate Members of the American Standards Association. Member-Bodies are national associations which through their membership in the ASA have representation on the ASA Standards Council, and thus have a voice in all decisions on initiation of standardization projects, and approval of standards.

troleum Institute, and has served continuously since that time. He has had close contact with standardization in the petroleum industry, having been chairman of the Standards Committee of the American Petroleum Institute.

The National Machine Tool Builders Association has been invited to nominate a member of the ASA Board and is expected to act at its annual meeting early in 1940.

Other members of the Board of Directors are listed on the title page of this magazine.

Standards for Insulating Materials Discussed in ASTM Symposium

In one of the four papers comprising the Symposium on Thermal Insulating Materials just published by the American Society for Testing Materials, many problems now being studied in an effort to develop proper standards for gaging the acceptability of materials are discussed by H. H. Rinehart. His paper is entitled "A Discussion of Test Methods for Determining the Physical Properties of Thermal Insulation."

Other papers in the Symposium are:

Factors Influencing the Thermal Conductivity of Materials, by J. B. Austin

One Consumer's Problems in Selecting Thermal Insulation, by E. T. Cope and W. F. Kinney

The Effect of Solar Radiation on the Heat Transmission Through Walls, by F. C. Houghten, Carl Gutberlet, and Albert A. Rosenberg

Copies of the 125-page Symposium, which also includes the discussion of the papers, are available at \$1.25 in heavy paper cover, \$1.50 in cloth cover, from the American Society for Testing Materials, 260 S. Broad Street, Philadelphia.

Standard Improves Weather Resistance Of Coverings for Aerial Wire and Cable

RUBBER-INSULATED aerial wire and cable with weather-resistant covering, whether used by the electric light and power companies, railroads, communication companies, or industrial plants, must withstand the weathering elements over a wide range of climatic conditions and temperature.

Light and power distribution, railway signal, police fire alarm, telegraph and telephone drop wire circuits are common examples of overhead outdoor applications of wire and cable for which weather-resistant coverings meeting the requirements of this new standard are recommended. It is not intended that these specifications shall apply to wires and cables to be installed in duct systems or for burial underground.

While several different types of protective covering may be specified over the rubber-insulated conductors, the most usual type of outer covering is a cotton braid, of no particular texture or weight, made weather resistant by the use of bituminous saturating and finishing compound. For

by

L. L. Carter¹ and Alfred Bellis²

more than 50 years all of these cables looked more or less alike, having as the outside covering a brightly polished black compound made up from a blend of waxes and bituminous material.

"Weatherproof" became the commonly accepted description for the finish on any cable which had a bright black outside surface, regardless of whether this cable might have rubber insulation, varnished cambric insulation, or the double or triple braid covering of Weatherproof Wire. Weatherproof finish was specified without specific discrimination as to whether the material was to

¹Anaconda Wire & Cable Company, New York.

²John A. Roeblings' Sons Company, Trenton, N. J.



Wire and cable coverings are here subjected to normal weathering conditions. Observations taken at regular intervals determine their weather-resistant properties and help in developing improved materials and processes.

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Aerial rubber-insulated cable is used in electrical control of railroad signals

be used within buildings in open wiring or in conduit, whether it was to be installed outdoors on poles or between buildings, whether it was to be drawn into an underground duct system or be buried directly in the earth except as could be judged from the order or purchase specification. It is readily apparent that confusion frequently resulted from the almost universal reference to these finishes as weatherproof.

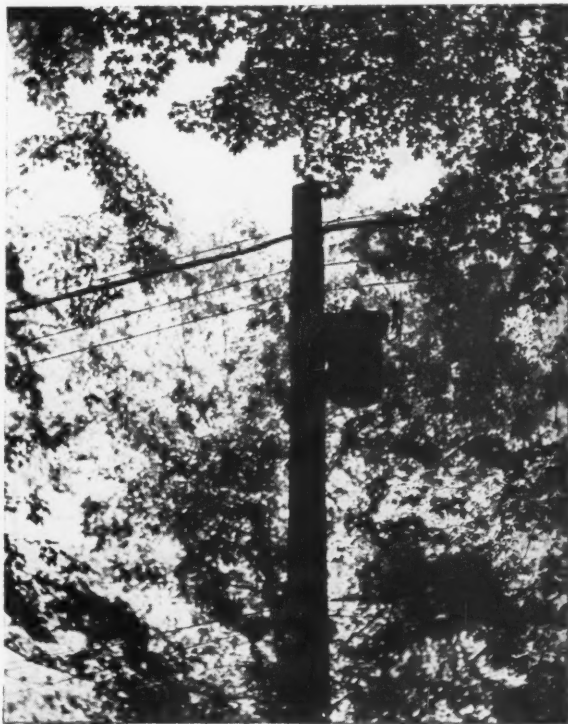
A somewhat similar situation developed after the introduction of the pitch-base flame-retardant moisture-resistant finish for rubber-covered wire and cable required for 600-volt wire under the National Electrical Code. For many years braided covering filled with white, gray, black, or red lead base paint had been referred to as flameproof although it was recognized technically and commercially as slow-burning finish. With both of these types of finishes available it was uncertain which finish was desired when the purchaser of wire and cable merely specified flameproof finish, except that on rubber-insulated products the slow-burning paint finishers were not commonly used; however, it was frequently used on varnished-cambric insulated wire and cable for central and

substation circuits. While this is a good flame-retardant finish and can well be used in high-temperature locations it is not highly moisture resistant.

As a result of these distinctions, greater attention was given the materials and methods used in saturating and finishing protective braids on wire and cable, and it became necessary to clarify the situation as to the types of materials which might be applied to best advantage on cables with different insulation for different classes of service.

A decided stimulus to such work of clarification came from the early development work in the communications industry, to provide more durable weather-resisting finish for the braid covering used on telephone drop wire. The development and general acceptance of the improved type of Weatherproof Wire, known as URC Type, as provided by the American Tentative Standard for Weather-Resistant (Weatherproof) Wire and Cable, URC Type (C8.18-1936) stimulated a demand for the application of this same class of protective materials to the braid covering of insulated wire and cable for aerial service.

For a considerable time orders for rubber-covered wire were placed which specified URC finish. This made it necessary to make clear to the users



Aerial rubber-insulated cable is also used in distribution of electrical power

Technical Committee Prepares New Standard on Wire Coverings

A technical committee, appointed by the general ASA committee to study the immediate problems connected with weather-resistant coverings for aerial wire and cable, prepared the new standard specifications which were approved by the ASA committee on wire and cable, and recommended by that committee to the American Standards Association for approval as American Standard. This technical committee cooperated with the Insulated Power Cable Engineers Association in order to make the new standard and the corresponding IPCEA specifications agree.

The technical committee members are:

D. S. MacCorkle, Phelps Dodge Copper Products Corporation, *Chairman*
 Harry Bockus, Solar Compounds Corporation
 L. L. Carter, Anaconda Wire & Cable Company
 J. J. Corcoran, New York Central Railroad
 W. C. Hayman, General Electric Company
 E. B. Middleton, Philadelphia Electric Company
 R. A. Schatzel, General Cable Corporation
 R. B. Shepard, Underwriters Laboratories, Inc.
 H. S. Vassar, Public Service Electric & Gas Company

This same Technical Committee No. 8 will continue to study standardization problems on other fibrous coverings for wire and cable.

of wire and cable that the cotton braid on rubber-insulated and varnished-cambic insulated wire and cable were processed with a saturant and a finishing compound quite distinct from those used in the manufacture of double and triple-braid weatherproof-wire Type URC. It is not practical to apply the URC weatherproof wire saturant to insulated wire and cable generally because of the viscosity characteristics and the high temperatures required for the thorough penetration of the saturant.

The URC type of finish can be applied to any

type of saturated fibrous-covered wire and cable. However, this finish is distinctive by reason of the material used and the heavier application of coating than is customary with moisture-resistant finish for rubber-insulated wire and cable.

These considerations resulted in an undertaking by the representatives of the wire and cable manufacturing group to develop a specification for fibrous coverings, and materials suitable for their treatment, primarily intended to give the optimum in protection against the weather.

The membership of ASA Technical Committee No. 8 included several representatives who were particularly interested in this subject of protecting aerial rubber-insulated wire and cable, and by considerable discussion and comparison of experience over several years, it was finally possible for this committee to complete the new American Standard Specifications for Weather-Resistant Saturants and Finishes for Aerial Rubber-Insulated Wire and Cable (C8.19-1939).

Acknowledgment is made of the helpful assistance given by the communication and power utilities, the manufacturers of saturating and finishing compounds, and the wire and cable companies through their personnel and use of their development and laboratory facilities.

Physical characteristics of the saturant are given in the specification but characteristics of the finisher are not included. The reason is that the finishing compound is subjected to the performance requirements of the finished wire or cable as measured by the melt, drip, and bend tests.

Fibrous coverings for aerial wire and cable have been under consideration in the Technical Committee and in the industry for more than five years, during which time thorough discussion and correlation with available data and experience is believed to have resulted in an adequate and practical standard. Committee No. 8 is to be congratulated upon its accomplishment. It is expected that an appreciation of its work will be shown by general adoption of this standard in specifications for fibrous coverings for the protection of rubber-insulated wire and cable for use in aerial installations in order to provide for long and adequate service.

ASTM Issues Standards For Chemical Analysis

The second edition of the ASTM Methods of Chemical Analysis, a 250-page book, was issued in September, giving in their latest approved form all of the analytical procedures for ferrous and non-ferrous metals and spectro-chemical analysis

issued by the American Society for Testing Materials. Four standards cover ferrous metals, 12 apply to non-ferrous metals and alloys, and three are spectrochemical methods.

Copies can be obtained from the American Society for Testing Materials, 260 S. Broad Street, Philadelphia, at \$2.00 per copy in paper cover; \$2.50 in blue cloth binding.

New American Standard for Magnet Wire To Eliminate Variety in Specifications

HAVING completed revisions of the standard specifications for plain enameled, cotton-covered, and silk-covered magnet wires in 1936,¹ the Technical Committee on Magnet Wire of the ASA Committee on Specifications for Insulated Wires and Cables immediately set about preparing specifications for heavy-walled enameled round copper magnet wire, commonly referred to as "double-enameled" wire.

As plain enamel gradually displaced, to a large extent, the insulations previously used for magnet wire, the advantages and limitations of it as magnet-wire insulation became generally known. Chief advantages were its non-hygroscopicity, high dielectric strength, improved heat resistance, better "space factor" and relatively lower cost in finished wire. These were offset to some extent by its relatively poor resistance to abrasion conditions incident to winding and forming of coils. In order to obtain the advantages of enamel insulation and to offset its disadvantages, a composite insulated wire came into use where coil-winding operations or service conditions in electrical machinery or equipment were severe. Such wire consists of an enameled conductor over which one or more servings of abrasion-resistant material such as cotton yarn, silk yarn, or paper is applied. Of these the enameled-single cotton construction is in most general use. In fact, this magnet wire construction is second only to plain enamel wire in tonnage used.

With technologic improvement in the manufacture of enameled wire, it was found that by building up the film thickness of the enamel a wire could be obtained which had most of the advantages of plain enameled wire and approached the abrasion-resistant characteristics of the enamel-single cotton or similar constructions. This heavy-walled (double) enamel wire then gradually found more and more uses and its volume increased to a sizeable proportion of the magnet wire output.

Prior to the adoption of the specifications for heavy-walled enameled wire, manufacturers and users of this type of wire made and used so-called "double-enamel" wires varying in enamel film thicknesses from values slightly above plain (single) enamel to double or triple those values.

by

H. D. Crowe

General Cable Corporation

Thus a large number of individual specifications were in existence and the need for standardization along lines similar to those adopted for plain enamel became apparent.

In setting up the specifications for "heavy-walled enameled round copper magnet wire" the Technical Committee considered the dimensional limits and performance requirements of the large number of specifications in use, and formulated requirements and limits that could be generally adopted by magnet-wire manufacturers and users without resort to major changes in manufacturing methods or equipment or in equipment design or operating procedures by the user.

These specifications follow the form and general test requirements of the American Standard Specifications for Enameled Round Copper Magnet Wire (C8.7-1936) with limits, of course, which are consistent with the somewhat different characteristics of the finished wire. Thickness of enamel film for the full range of wire sizes is set up on a logical graduation from heavier films on the larger sizes to thinner films on the smaller sizes of wire.

Illustrative of the insulation addition for heavy-walled enameled wire in comparison with other magnet wire constructions covered by American Standard specifications, the following table of three representative sizes of round magnet wire

This article, which announces approval of the new American Standard Specifications for Heavy-Walled Enameled Round Copper Magnet Wire, (C8.20-1939), was prepared by Mr. Crowe, and presented for publication by M. A. Kent, chairman of the technical committee which prepared the new specifications. Mr. Kent is vice-president and director of manufacturing of the General Cable Corporation.

¹See article "Industrial Trends Influence Changes in Three Magnet Wire Standards" by M. A. Kent, INDUSTRIAL STANDARDIZATION, Dec. 1936.

Manufacturers, Users Represented on ASA Wire, Cable Committee

The general ASA Committee on Wire and Cable (C3) which recommended approval of the new American Standard Specifications for Heavy-Walled Enameled Round Copper Magnet Wire (C3.20-1939) and the American Standard Specifications for Weather-Resistant Saturants and Finishes for Aerial Rubber-Insulated Wire and Cable (C3.19-1939) is made up of membership representing manufacturers, users, and technical groups concerned with wire and cable problems. Members of the committee are:

W. F. Davidson, Electric Light and Power Group, *Chairman*

G. M. Haskell, National Electrical Manufacturers Association, *Vice-Chairman*

W. H. Bassett, Jr., American Society for Testing Materials and National Electrical Manufacturers Association, *Secretary*

American Institute of Electrical Engineers, *W. A. DelMar*

American Society for Testing Materials, *W. H. Bassett, Jr.*; *R. W. Chadbourne*; *F. M. Farmer*; *Dean Harvey*

American Transit Association, *C. R. Harte*; *F. J. White*

Association of American Railroads, Engineering Division, Electrical Section, *C. R. Troop*

Association of American Railroads, Engineering Division, Signal Section, *J. J. Corcoran*

Association of American Railroads, Mechanical Division, Electrical Section, *J. R. Sloan*

Electric Light and Power Group, *W. F. Davidson*; *G. E. Dean*; *C. T. Sinclair*; *A. B. Campbell (alt.)*; *J. H. Foote (alt.)*

International Municipal Signal Association, Inc., *M. G. Lloyd*; *Jay B. Franke (alt.)*

National Board of Fire Underwriters, *A. H. Nuckolls*

National Bureau of Standards, U. S. Department of Commerce, *Dr. J. Franklin Meyer*

National Electrical Manufacturers Association, *W. H. Bassett, Jr.*; *G. M. Haskell*; *C. O. Hull*; *Moss A. Kent*; *E. D. Youmans*

National Fire Protection Association, *R. B. Shepard*

Society of Automotive Engineers, *F. W. Andrew*

Telephone Group, *C. S. Gordon*

U. S. Navy Department, Bureau of Engineering, Specification Section, Design Division, *Officer in Charge*; *Laboratory Officer, Material Laboratory (alt.)*

U. S. War Department, *Arthur J. Sheridan*

This committee, working through its technical subcommittees, has now completed a series of 19 standards for wire and cable.

are shown. Values given represent maximum additions to diameter of the bare wire in inches due to total insulation:

Type	No. 8 AWG	No. 16 AWG	No. 26 AWG
Enameled Wire (C8.7-1936) . . . . .	.0026	.0021	.0013
Heavy Walled Enameled Wire . . . . .	.0044	.0035	.0024
Enamel-Single Silk (C8.6-1936)	—	.0041	.0033
Enamel-Single Cotton (C8.5-1936) . . . . .	.0106	.0071	.0058
Single Cotton Covered (C8.5-1936) . . . . .	.0080	.0050	.0045
Double Silk Covered (C8.6-1936)	—	.0040	.0040
Double Cotton Covered (C8.5-1936) . . . . .	.0140	.0095	.0085

In setting up the "specifications for heavy-walled round copper magnet wire" the Technical Committee recognized that neither the technology of manufacture nor variation in use of this type of wire is static. Therefore, the committee will continue to keep itself informed of latest improvements and will not hesitate to revise the specifications if and when the need arises.

Experts on Technical Committee

A technical committee of experts in the manufacture and use of magnet wire was appointed by the ASA Committee on Wire and Cable to prepare the new standard specifications for Heavy-Walled Enameled Round Copper Magnet Wire. This technical committee cooperated with the Magnet Wire Section of the National Electrical Manufacturers Association in order that both the new standard and the corresponding specifications of NEMA would agree.

Members of the committee were:

M. A. Kent, General Cable Corporation, *Chairman*

F. W. Andrew, Consulting Engineer

E. W. Clark, General Electric Company

R. H. Dagleish, Capitol Traction Company

E. H. Hammond, Kennecott Wire & Cable Company

Dean Harvey, Westinghouse Electric & Manufacturing Company

T. M. Hunter, American Transformer Company

F. B. Hynes, Crocker-Wheeler Electric Manufacturing Company

T. S. Johnson, Anaconda Wire & Cable Company

Kenneth MacKay, Acme Wire Company

Twelve other technical committees are working under the general ASA Committee on Wire and Cable, on general standards; conductors and stranding; definitions; rubber insulation; impregnated paper insulation; varnished cloth insulation; fibrous coverings; metallic coverings; weatherproof wires; and heat-resisting wires.

Electrical Committees Report Many New Standards Under Way

THIRTY-THREE of the ASA committees working on problems of electrical standardization have reported on their activities for the year, showing that many new draft standards are being considered and are nearing completion. New work is being undertaken by some of the committees.

In the reports published below, the name of the organization sponsoring the work of the committee is shown. In those cases where the name of the chairman or secretary is given, the Electrical Standards Committee is acting as sponsor of the committee.

Rating of Rivers (A36)—Members of this committee, as well as organizations such as the Tennessee Valley Authority which are interested in power but were not in existence when the program was originated, have been asked to make recommendations for further action. A number of replies indicating complete agreement with the rules adopted by the International Electrotechnical Commission and used by the World Power Conference have been received. In addition, other replies indicate general agreement with the rules, but suggest partial changes and modifications. Some of these replies indicated a lukewarm attitude toward the project as a whole. A few were out-spoken in their dislike of these rules, or any similar rules. No replies have been received from about 10 of the committee, although follow-up letters have been sent.—*U. S. Department of the Interior, Geological Survey.*

National Electrical Safety Code (C2)—This Code has been under revision for more than two years. The revision of Part 4 has already been approved by the Standards Council, and the revisions of section 9, Part 1, Part 3, and Part 5 have been completed.

Revision of Part 2 has lagged because the technical committee dealing with this subject has not yet been able to report regarding very radical proposals for change in the loading specifications and strength requirements of supports.

A new Part 6, on electric fences, has been reviewed, but some slight revisions have seemed desirable. It is nearly ready for final vote by the committee. The committee has voted that future revisions of this part of the Code should be made by a separate sectional committee.—*National Bureau of Standards, U. S. Department of Commerce.*

Code for Protection Against Lightning (C5)—Since part I, Protection of Persons, and Part II, Protection of Buildings and Miscellaneous Property, were approved as American Standards in 1937; and Part III, Protection of Structures Containing Inflammable Liquids and Gases was approved as an American Tentative Standard there has been no activity on the part of the committee.—*American Institute of Electrical Engineers; National Bureau of Standards.*

Rotation, Connections and Terminal Markings for Electric Power Apparatus (C6-1936)—Since approval of the standard in 1936 there has been very little activity.—*National Electrical Manufacturers Association.*

Insulated Wire and Cable (Other than Telephone and Telegraph) (C8)—Two new standards have been approved, covering:

Specifications for Weather-Resistant Saturants and Finishes for Aerial Rubber-Insulated Wire and Cable (C8.19-1939)

Specifications for Heavy-Walled Enameled Round Copper Magnet Wire (C8.20-1939)

The specifications for Class A 30 Per Cent Rubber Insulation for Wire and Cable (C8.4-1936) have been withdrawn. Revisions of the Specifications for Impregnated Paper Insulation for Wire and Cable (C8.18) are now out to letter ballot of the sectional committee. The Specifications for Rubber-Insulated Tree Wire (C8.16) are being reviewed to determine the advisability of recommending certain minor revisions to take into account recent progress and design in manufacture.

In addition to completing the above specifications, the committee is considering developing specifications for technical requirements of complete wires and cables of types most commonly used in industry. This is in line with the long-standing program of the committee to first develop suitable specifications for the component parts—conductors, insulation, and covering—of wire and cable and then prepare specifications indicating the suitable assembly of requirements covering the several components.—*W. F. Davidson, chairman; W. H. Bassett, Jr., secretary.*

Hard-Drawn Aluminum Conductors (C11-1927)—No activity has been reported during the past year.—*American Institute of Electrical Engineers.*

Code for Electricity Meters (C12-1928)—

Six subcommittees have been organized and are now revising sections of the present edition of the Code. These subcommittees are:

Definitions, Section I (Subcommittee 1)—R. D. Bennett, Massachusetts Institute of Technology, *chairman*

Standards and Metering, Sections II and III (Subcommittee 2)—H. B. Brooks, Washington, D. C., *chairman*

Acceptance of Types of Meters, Sections IV and V (Subcommittee 3)—W. C. Wagner, Philadelphia Electric Company, *chairman*

Installation Methods, Sections VI and VII (Subcommittee 4)—O. K. Coleman, American Gas & Electric Company, *chairman*

Laboratory & Service Tests, Section VIII (Subcommittee 5)—P. L. Holland, Maryland Public Service Commission, *chairman*

Demand Meters, Section IX (Subcommittee 6)—A. J. Allen, Consolidated Edison Company of New York, *chairman*

Reports from four of these subcommittees have been submitted to the chairman of the sectional committee. It is expected that a meeting of the six chairmen will be held soon to correlate and arrange the six separate reports into one general report to submit to the committee.—*Electric Light and Power Group; National Bureau of Standards.*

750-Volt Direct-Suspension Overhead Trolley Contact Construction (C15-1938)—No changes in this standard are being planned.—*American Transit Association.*

Radio (C16)—During the past year a group of manufacturers' standards were approved as American Standard, and two standards have been sent to letter ballot of the sectional committee. These are:

Measurements for radio receiver characteristics
Vacuum tube bases (supplementary material)

Two proposed standards, covering measurements for loud speakers, and covering a new volume indicator and reference system for program and speech measurements, are being prepared for letter ballot of the committee.—*Institute of Radio Engineers.*

Dry Cells and Batteries (C18)—Steps are being taken to reorganize the sectional committee with a view to revising the Standard Specifications for Dry Cells during the year 1940. The revision is needed because of the development of new types of batteries for portable radios and meteorological work and because of improved quality of some of the older types of batteries. Changes are being proposed in the committee membership to adjust the committee to present conditions.—*National Bureau of Standards.*

Industrial Control Apparatus (C19-1928)

—This committee, reorganized in July, has been active during 1939. The present edition of the standard, dated 1928, has been thoroughly re-

viewed and a manuscript prepared for a complete revision.—*American Institute of Electrical Engineers; National Electrical Manufacturers Association.*

Insulators for Electric Power Lines (C29)

—The revision of the American Standard for Insulator Tests (C29a-1930) is well along toward completion by the Lightning and Insulator Subcommittee of the Committee on Power Transmission and Distribution of the American Institute of Electrical Engineers. It is expected that the revised standard will be ready to submit to the ASA early in 1940.

On the suggestion of the American Society for Testing Materials the committee has expanded its work to include the development of tests for glass insulators and has enlarged its membership accordingly. The ASTM has published a Tentative Standard Method of Testing Pin Type, Lime Glass Insulators, which has been submitted for consideration by the committee.—*A. B. Campbell, Secretary.*

Specifications and Standards for Electrical Devices and Materials with Relation to Fire and Casualty Hazards (C33)—There has been no change in the status of this project during the past year.—*Underwriters' Laboratories, Inc.*

Mercury Arc Rectifiers (C34)—Development of rectifiers has not yet reached a stage where it would be advisable to approve the present report in revised form as a standard.—*American Institute of Electrical Engineers.*

Railway Motors and Other Rotating Electrical Machinery on Rail Cars and Locomotives (C35-1937)—There has been no recent activity in this project.—*American Institute of Electrical Engineers.*

Power Switchgear (C37)—Two proposed standards have been considered by this committee during 1939. The proposed standard on Air Switches (C37.3) will be returned to the subcommittee for revision as soon as the six NEMA members of the committee cast their ballots on the question submitted to them August 6. The third draft of the proposed standard on A-c Circuit Breakers (C37.4) was sent to letter ballot of the committee May 5. Thirteen of the 19 members have voted in favor of approval of the proposed standard, but it is understood the NEMA representatives will request some changes.—*H. R. Summerhayes, chairman.*

Electrical Measuring Instruments (C39)—The standard on Electrical Indicating Instruments (C39.1-1938) is now in use. The committee intends to allow it to circulate for several years in order that new ideas incorporated in this standard may have a trial before it is used as a guide for work on a standard for recording instruments.—*E. J. Rutan, Chairman.*

Storage Batteries (C40-1928)—The organization of a committee for this project has been completed and will be called together for its first meeting soon.—*American Institute of Electrical Engineers.*

Definitions of Electrical Terms (C42)—Proposed revisions to the draft standard received as the result of a letter ballot are being prepared for circulation to the committee. The AIEE Board of Directors has agreed to supply added help needed to expedite this work.—*American Institute of Electrical Engineers.*

Electric Railway Control Apparatus (C48-1931)—There is no apparent need for a revision of this standard.—*American Institute of Electrical Engineers.*

Rotating Electrical Machinery (C50-1939)—Suggestions for the revision of this standard have gradually been accumulating, indicating that the time has about arrived when revision should be undertaken. It is planned to take up the revision soon.—*E. B. Paxton, Secretary.*

Electric Welding Apparatus (C52)—The American Institute of Electrical Engineers and the National Electrical Manufacturers Association have resigned their sponsorship in favor of a single sponsorship by the American Welding Society. After the committee is reorganized, revisions of the two existing standards will be undertaken.

Capacitors (C55-1934)—No activity is reported.—*American Institute of Electrical Engineers.*

Transformers (C57)—A revised draft of proposed American Standards for Transformers, Regulators and Reactors, and American Recommended Practices covering a Test Code for Transformers, Regulators, and Reactors, and Guides for the Operation of Transformers, was circulated to the committee in October, 1939, for a vote as to whether they should be printed for a period of trial in use. A meeting of the committee is scheduled early in January to consider certain minor revisions brought to its attention by the vote. It is hoped that the document can then be printed for a period of one year's trial use by industry. These standards are comprehensive in character, the mimeographed draft covering more than 150 pages. It is hoped that all comments and criticisms accumulated by their trial use will be available to the committee.

Electrical Insulating Materials (C59)—In July, two ASTM standards, submitted to the ASA on recommendation of this committee, were approved as American Standard:

Methods of Test for Insulation Resistance of Electrical Insulating Materials (C59.3-1939; ASTM D 257-38)

Specifications for Rubber-Insulating Tape (C59.6-1939; ASTM D 119-38)

The committee also approved ASTM Specifications for Friction Tape for General Use for Electrical Purposes (D 69-39) for submittal to ASA. This recommendation has been withheld by the ASTM, however, because the committee responsible for the specifications is considering revisions to meet the objections of the railroads, which had voted against submitting the specifications to the ASA.

It is expected that a revision of the American Standard Methods of Testing Molded Materials Used for Electrical Insulation (C59.1; ASTM D 48) will be submitted to the ASA soon.

The next meeting will probably be held early in March, 1940.—*American Society for Testing Materials.*

Lightning Arresters (C62-1936)—There is nothing new to report on this project.—*American Institute of Electrical Engineers.*

Electric and Magnetic Magnitudes and Units (C61)—This committee suffered a severe loss during the year in the death of its chairman, Professor A. E. Kennelly. Professor Kennelly was an internationally known expert on this subject and his place as chairman of this committee will be difficult to fill. In view of the actions taken by the IEC at its meeting in 1938, there has been no work of any importance before the committee during the past year.—*J. W. McNair, Secretary.*

Power-Operated Radio Receiving Appliances (C65-1938)—No revisions have been adopted since approval of this standard in 1938.—*Underwriters' Laboratories, Inc.*

Copper Wire—Letter ballots on revisions of the following standards have been completed and the standards will be submitted to the ASA soon for approval:

Hard-Drawn Copper Wire (H14; ASTM B 1-39)

Medium-Hard-Drawn Copper Wire

(H15; ASTM B 2-39)

Soft or Annealed Copper Wire (H4; ASTM B 3-39)

Tinned Soft or Annealed Copper Wire for Electrical Purposes (H16; ASTM B 33-39)

Hot-Rolled Copper Rods for Electrical Purposes (ASTM B 49-39)

Bronze Trolley Wire (H22.1; ASTM B 9-39)

Copper Trolley Wire (H22.2; ASTM B 47-39)

At the same time it is planned to recommend that all the ASA projects on the subject be consolidated into one under the title "Copper Wire," with a sectional committee in charge made up of members of the present ASA Committee H4, with the addition of representatives of the American Transit Association. It is also recommended that trolley wire be added in the scope of the committee.—*American Society for Testing Materials.*

Wood Poles (05)—The personnel of the committee has now been brought up to date, and

a meeting is planned early in 1940. At this meeting the committee will be asked to take action on the following proposals:

1. To convert the tentative specifications to American Standards
2. To enlarge the scope of the committee
3. To form a subcommittee for the development of standard methods for testing the strength of poles.

—ASA Telephone Group.

Illuminating Engineering Nomenclature and Photometric Standards (Z7-1932)

Three problems remain to be settled before the revision of the report on this subject is completed and submitted to the ASA.

1. In the proposed section on Radiation terms, difficulty has arisen from the fact that accepted values for the constants of radiation have recently been subject to serious question. Members of the committee have urged that the numerical values in the report be made self-consistent, but as yet it has not been possible to decide just how this should be done.

2. With regard to color terms, the committee expects to follow as closely as practicable the principles adopted by the Committee on Colorimetry of the Optical Society of America. That committee has issued a preliminary report, but during the year the fundamental bases of the color definitions have been under discussion and important changes may be made in the Optical Society report.

3. Terms relating to the use of light in aeronautics have been taken over from the section on Illumination of the draft report on Definitions of Electrical Terms of the American Institute of Electrical Terms. Some details of these definitions, however, were not satisfactory and a revised draft was prepared. It has been submitted to the IES Committee on Aviation Lighting

which has appointed a subcommittee to review these definitions.

—Illuminating Engineering Society.

Letter Symbols and Abbreviations for Science and Engineering (Z10)—Advance page proofs of revisions of three standards are now before this committee:

Letter Symbols for Mechanics of Solid Bodies
Letter Symbols for Heat and Thermodynamics
Abbreviations for Scientific and Engineering Terms

—American Association for the Advancement of Science; American Institute of Electrical Engineers; American Society of Civil Engineers; American Society of Mechanical Engineers; Society for the Promotion of Engineering Education.

Graphical Symbols and Abbreviations for Use on Drawings (Z32)

This committee has been actively at work during the past year preparing revisions of existing standards and developing new ones. Early in December meetings of the subcommittees on Mechanical and on Electrical Symbols and also of the sectional committee were held. At this meeting it was decided to send to letter ballot of the committee the following proposed American Standards:

Graphical Symbols for Welding
Electrical Symbols for Architectural Plans
Heating, Ventilating and Refrigeration Symbols

It is hoped that several groups of electrical graphical symbols will be ready for letter ballot in the near future.—American Institute of Electrical Engineers; American Society of Mechanical Engineers.

ASA Company Member Forum Discusses Metal Classification, Gaging Practices

Classification and identification of metals and alloys, and proposed systems of tolerances, fits, and gaging practices were the two subjects discussed at the informal meeting of the ASA Company Member Forum December 14. Sam Tour, vice-president of Lucius Pitkin, Inc., and chairman of Committee B-7 on Light Metals and Alloys, Cast and Wrought, of the American Society for Testing Materials, used lantern slides to illustrate his talk on systems for classifying metals. He also told of some of the difficulties connected with the use of such systems of identification as stenciling, stamping, and color marking. Several of those present spoke on the methods of identification used in their companies.

The afternoon session was given over to a discussion of the history and present status of the ASA project on Allowances and Tolerances for Cylindrical Parts and Limit Gages and the system

of tolerances, fits, and gaging practice developed by a committee of the International Standards Association, as well as the application of this work in the companies represented.

Subjects were suggested for discussion at future meetings, including methods of test and specifications for plastics, inventory and material control, specifications for government departments, standards work of the International Electrotechnical Commission, and the International Standards Association, eyelets, and a review of ASA projects, in addition to the list of subjects suggested at past meetings.

In the three meetings already held this year the Forum has taken up the relationship of standardization to other departments of a company; application of preferred numbers in standardization; standardization of screw threads; application of methods of statistical analysis to company standardization work; and standardization of office equipment.

It is expected that the next meeting of the Forum will be held in March.

Children's Bureau Rules to Protect Minors from Work on Motor Vehicles

DRIVING or acting as helper on a motor vehicle are occupations particularly hazardous to young people between 16 and 18 years of age, the Children's Bureau of the U. S. Department of Labor ruled in its second order for the protection of employed minors, effective January 1. The first order of the Bureau applied to work connected with explosives.

The Children's Bureau has the responsibility, under the Fair Labor Standards Act of 1938, for finding and declaring occupations hazardous or detrimental to the health or well-being of minors. It works with the help of an Advisory Committee of 15 members, experts from industry, safety, and educational organizations, under the chairmanship of Cyril Ainsworth, assistant secretary of the American Standards Association.

Based on Investigation

The Bureau's ruling that driving or helping on motor vehicles is one of the hazardous occupations was based on an investigation which revealed, in part, that work on motor vehicles involves a high degree of accident risk for persons of all ages, but particularly high in the case of young persons, who are lacking in the experience and caution required for safety in motor-vehicle operation. Workmen's compensation experience generally shows a higher compensation cost for the occupational classifications representing motor-vehicle drivers and helpers than for manufacturing classifications, and experts in motor-vehicle safety and others with practical experience in motor-vehicle operation are of the opinion that employment as driver or as helper on motor vehicles is especially hazardous for young persons, the investigation showed. In addition, the Bureau found that motor-vehicle drivers between 16 and 18 years of age have been involved in a larger number of fatal accidents in proportion to miles driven than drivers in any older age group. In a study covering fatal accidents within a five-year period in one State the fatal-accident rate was found to be nine times greater for 16-year-old drivers and six times greater for 17-year-old drivers than for those 45 to 50 years of age, the age group with the lowest fatal-accident rate.

"Motor-vehicles" are automobiles, trucks, truck-tractors, trailers, semitrailers, motorcycles, or other vehicles propelled or drawn by mechanical power as a means of transportation but not any

vehicle operated exclusively on rails, according to the Bureau's definition.

At its meeting in October the Advisory Committee recommended that the Children's Bureau make its decisions on the basis that occupations particularly hazardous or detrimental to the health of adult workers are also particularly hazardous to minors; but that other occupations not particularly hazardous to adult and experienced workers may have special hazards for minors under 18. Among these latter occupations, the Advisory Committee suggested, are those requiring a degree of muscular coordination, stability, maturity of judgment, or resourcefulness in meeting emergencies not usually characteristic of young workers, and those occupations injurious to growth or development. The committee recommended that the Children's Bureau study the facts and determine these occupations as rapidly as possible.

At the October meeting of the Advisory Committee, it was also suggested that the work of the Children's Bureau might tie in closely with the work of ASA safety code committees, and that the orders of the Children's Bureau might in certain cases permit the employment of minors in hazardous occupations if those occupations are surrounded by the safeguards recommended in American Standard safety codes. This suggestion will be given further consideration.

New Work Considered

Some of the industries which have been suggested for investigation by the Children's Bureau during the next year include mining and quarrying (other than coal mining), the textile industries, paper and paper products, printing and allied industries and occupations, and metal-working and oil-refining industries as well as those occupations connected with hoisting machinery.

Underwriters' Laboratories' Approval Requirements

Three standards outlining approval requirements have been issued by Underwriters' Laboratories recently for electric fence controllers, attachment plugs and receptacles, and flexible nonmetallic tubing.

Eastman and Agfa Ansco Form New ASA Photographic Group

REFLECTING the recent activity of the American Standards Association in the photographic field, a new Photographic Manufacturers Group has been formed and is now a Member-Body of the ASA. The Eastman Kodak Company and the Agfa Ansco Corporation which make up the membership of the Group have named two representatives and two alternates on the ASA Standards Council, giving them a voice in ASA decisions on national standardization problems.

The Group representatives on the Council are:

Dr. W. Schmidt, Agfa Ansco Corporation
Charles Z. Case, Eastman Kodak Company
Paul Arnold, Agfa Ansco Corporation (alternate)
Edward S. Farrow, Eastman Kodak Company (alternate)

The Agfa Ansco Corporation has been interested in standardization work for a number of years through the standardization activities of the Academy of Motion Picture Arts and Sciences, the Society of Motion Picture Engineers, and the U. S. Department of Commerce. In its own organization, a standards engineer of the plant engineering department is charged with the responsibility for applying existing standards to new construction and to mechanical, electrical, and structural details in plant maintenance and repair.

Dr. Schmidt, named by the Agfa Ansco Corporation as one of the Group members on the Standards Council, has had experience in international photographic standardization as a representative of the company on the American Committee of the International Congress for Scientific and Applied Photography. Mr. Arnold, his alternate, has for a number of years been a member of the Standards Committee of the Society of Motion Picture Engineers. He represents the Agfa Ansco Corporation on the ASA Committee on Standardization in the Field of Photography (Z38) and on the ASA Committee on Standards for Motion Pictures (Z22).

Agfa Ansco Welcomes Work

"The recent interest of the ASA in standardization work in the neglected photographic field was particularly welcomed by Agfa Ansco," the company says. "Arrangements have been made within the company to insure the active cooperation and

participation in the work of ASA committee Z38 by all of the factories and manufacturing departments. The promulgation of standards in the photographic field is considered important and pressing so that the cost and the effort are freely borne in the hope of a speedy solution to the photographic standards program."

Charles Z. Case, named by the Eastman Kodak Company as a Group member on the Standards Council, has been with the company since 1912, and from 1921 to 1932 was stationed at the Eastman Plant in England as assistant to the managing director, and subsequently as managing director. In 1932 he returned to Rochester to supervise special developments. Mr. Farrow, Mr. Case's alternate, has been with the company since 1921, and has served as superintendent of the chemical plant, and as assistant to the general manager of the Kodak Park Works. Since 1934 he has been assistant production manager for the company.

Eastman Has Standards Program

The Eastman Kodak Company has an active standardization program which it describes as follows:

"As a consumer of many materials, the company takes full advantage of the standardization work of other industries. Materials are purchased to conform to American Standards wherever practical, because nearly always they represent the best values, and are the most readily procured.

"To carry out this policy effectively, the company publishes for its engineers, storekeepers, and buyers a standards catalog listing several thousand items, selected by committees of its technical and shop people. This catalog is at the elbow of every person concerned with material selection in the several manufacturing plants in this country.

"When important materials are not adequately covered by American Standards, or their equivalent, company purchasing specifications are prepared to serve in their place. Other materials are quality controlled by cataloging acceptable brands.

"All these publications are continually being revised, of course, to keep in step with new materials and more exacting production requirements."

ASA Standards Activities

Standards Approved Since Publication of Our December Issue

(Where price is not shown below, copies of standards were not available at time of publication. Orders will be received by the ASA and filled when copies become available.)

Computation of Strength and Thickness of Cast-Iron Pipe, American Recommended Practice	A21.1-1939
Specifications for Cast-Iron Pit Cast Pipe for Water or Other Liquids, American Standard	A21.2-1939
Specifications for Cement Mortar Lining for Cast-Iron Pipe and Fittings, American Standard	A21.4-1939
Specifications for Welded Wrought-Iron Pipe, American Standard (Revision of B36.2-1939)	B36.2-1939
Specifications for Lap-Welded and Seamless Steel Pipe for High-Temperature Service, American Standard (Revision of B36.3-1936)	B36.3-1939
Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 30 in. and Over), American Standard (Revision of B36.4-1936)	B36.4-1939
Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 8 in. to but not including 30 in.), American Standard (Revision of B36.9-1936)	B36.9-1939
Specifications for Sieves for Testing Purposes, American Standard	Z23.1-1939 25¢

Approved Standards Available Since Publication of our December Issue

Specifications for Billet-Steel Bars for Concrete Reinforcement, American Standard	A50.1-1939; ASTM A15-39 25¢
Specifications for Alloy-Steel Bolting Material for High-Temperature Service, American Standard	G17.2-1939; ASTM A96-39 25¢
Specifications for Forged or Rolled Steel Pipe Flanges for High-Temperature Service, American Standard	G17.3-1939; ASTM A105-39 25¢
Specifications for Mild Steel Plates, American Standard	G20-1939; ASTM A10-39 25¢
Specifications for Structural Rivet Steel, American Standard	G21-1939; ASTM A141-39 25¢
Specifications for Steel for Bridges and Buildings, American Standard	G24-1939; ASTM A7-39 25¢
Specifications for Zinc Oxide, American Standard	K22-1939; ASTM D79-39 25¢
Specifications for Red Lead, American Standard	K24-1939; ASTM D83-39 25¢
Specifications for Prussian Blue, American Standard	K29-1939; ASTM D261-39 25¢
Specifications for Reduced Para Red, American Standard	K31-1939; ASTM D264-39 25¢
Specifications for Titanium Dioxide Pigments, American Standard	K45-1939; ASTM D476-39 25¢
General Methods of Testing Woven Textile Fabrics, American Standard	L5-1939; ASTM D39-39 25¢
Definitions for Commercial Varieties of Bituminous and Subbituminous Coals, American Standard	M20.4-1939; ASTM D493-39 25¢
Specifications for Round Timber Piles, American Standard	O6-1939; ASTM D25-37 25¢

Standards Now Being Considered by Standards Council for ASA Approval

Proposed American Recommended Practice for the Use of Explosives in Anthracite Mines M27

Safety Code for the Prevention of Dust Explosions in the Manufacture of Aluminum Bronze Powder	
Safety Code for the Prevention of Dust Explosions in Pulverizing Systems for Sugar and Cocoa (Revision of Z12b-1931)	
Safety Code for Coal Pneumatic Cleaning Plants (Revision of Z12f-1930)	
Safety Code for Prevention of Dust Explosions in Wood Flour Manufacturing Establishments (Revision of Z12g-1930)	
Safety Code for the Prevention of Dust Ignitions in Spice Grinding Plants (Revision of Z12h-1931)	
Safety Code for the Use of Inert Gas for Fire and Explosion Prevention (Revision of Z12i-1931)	
Safety Code for Installation of Pulverized Fuel Systems (Revision of Z12.1-1935)	
Safety Code for the Prevention of Dust Explosions in Starch Factories (Revision of Z12.2-1935)	
Safety Code for the Prevention of Dust Explosions in Flour and Feed Mills (Revision of Z12.3-1935)	
Safety Code for Prevention of Dust Explosions in Woodworking Plants (Revision of Z12.5-1935)	
Building Exits Code (Revision of A9-1939)	
Commercial Standards for Sun Glass Lenses	(CS 78-39; CS 79-39)
Rubber-Insulated Tree Wire (Revision of C8.16-1936)	C8.16

Backlash for General Purpose Spur Gearing	B6.3
Approval Requirements for Domestic Gas Ranges (Revision of Z21.1-1937)	
Approval Requirements for Hot Plates and Laundry Stoves (Revision of Z21.9-1933)	
Approval Requirements for Gas Space Heaters (Revision of Z21.11-1936)	
Approval Requirements for Central Heating Gas Appliances (Revision of Z21.13-1938)	
Approval Requirements for Gas Unit Heaters (Revision of Z21.16-1934)	
Approval Requirements for Gas Clothes Dryers (Revision of Z21.5-1932)	
Listing Requirements for Gas Conversion Burners (Revision of Z21.17-1934)	
Listing Requirements for Ignition Failure Shut-Off Devices (formerly Automatic Devices Designed to Prevent Escape of Unburned Gas)	(Revision of Z21.20-1935)
Listing Requirements for Water Heater, Gas Range and Space Heater Thermostats (Revision of Z21.23-1935)	

Standards Withdrawn by ASA

Specifications of Laboratory Tests for Approval of Electric Headlighting Devices for Motor Vehicles	D2-1922
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Project Withdrawn by ASA

Standardization of Foundry Equipment and Supplies	B45
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Drafts Available

Allowable Concentrations of Carbon Monoxide, Proposed American Standard	
Allowable Concentrations of Hydrogen Sulfide, Proposed American Standard	
Allowable Concentrations of Carbon Disulfide, Proposed American Standard	
Allowable Concentrations of Benzene, Proposed American Standard	

2 New Standards

- Specifications for Weather-Resistant Saturants and Finishes for Aerial Rubber Insulated Wire and Cable (C8.19-1939) 20¢
- Specifications for Heavy Walled Round Copper Magnet Wire (C8.20-1939) 20¢

STANDARDS FOR

Definitions and General Standards
(C8.1-1932) 40¢

Component Parts

Cotton Braid (C8.12-1935) 20¢

Metallic Coverings (C8.15-1938) .. 20¢

Tree Wire Coverings (C8.16-1936) 20¢

Tinned Soft or Annealed Copper
Wire (C8b1-1928) } 30¢

Soft or Annealed Copper Wire
(C8b2-1928) }

Bare Concentric-Stranded Copper
Cable (C8.14-1938) 30¢

Varnished Cloth Insulation for Lead-
Covered or Braid-Covered Power
Cable (C8.13-1937) 40¢

Impregnated Paper Insulation for
Lead Covered Power Cable
(C8.10-1938) out of print, under revision

Rubber Insulation

Class A 30% (C8.4-1936)
approval withdrawn

WIRE AND CABLE

Class AO 30% (C8.17-1936) ... 20¢

Code Rubber Insulation for Gen-
eral Purposes (C8.11-1936) .. 20¢

Weather-Resistant Saturants and
Finishes for Aerial Rubber In-
sulated (C8.19-1939) 20¢

Complete Specifications

Weatherproof (C8k1-1932) } 20¢

Heat-Resisting (Ck2-1932) }

Magnet Wire

Cotton Covered Round Copper
(C8.5-1936) } 20¢

Enameled Round Copper
(C8.7-1936) }

Silk Covered Round Copper
(C8.6-1936) }

Heavy Walled Round Copper
(C8.20-1939) 20¢

Weather-Resistant, URC Type
(C8.18-1936) 20¢

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